



MATERNAL OUTCOMES OF EXPECTANT MANAGEMENT IN COMPARISON WITH INDUCTION OF LABOUR WITHIN TWENTY FOUR HOURS OF PREMATURE RUPTURE OF MEMBRANES (PROM).

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ABSTRACT... Objective: this study is conducted to compare the maternal outcomes of expectant management versus induction of labour within 24 hours of premature rupture of membranes. **Study Design:** Randomized controlled trial. **Setting:** Obstetrics and Gynaecology Department, Nishtar Hospital, Multan. **Period:** From 15 March 2018 to 15 September 2018. **Material & Methods:** A total of 130 pregnant women with parity 0 – 4 having singleton pregnancy, ≥ 37 weeks pregnant and having premature rupture of membranes were taken in the study. Two groups were made. In Group (A) women were subjected to expectant management in which patients were observed for uterine contractions for a period of 24 hours. In Group (B) women were induced with tab dinoprostone 2 doses each 3 mg given 6 hours apart. **Results:** In this study age range was from 18 to 35 years while in both groups most patients were 28 – 35 years old. In Group (A) mean gestational age was 38.246 ± 0.84 weeks while in Group (B) it was 37.953 ± 0.95 weeks. In Group (A) mean parity was 1.076 ± 1.16 and in Group (B) it was 1.815 ± 1.16 . In Group (A) 2.092 ± 0.67 hours was mean duration of PROM while in Group (B) it was 2.092 ± 0.67 hours. Mean BMI in Group (A) was 26.088 ± 3.80 kg/m² and in Group (B) it was 26.361 ± 4.33 kg/m². In Group (A), 24 patient (36.9%) delivered vaginally while 42 (64.6%) patient delivered vaginally in Group (B). 41 patients (63%) had cesarean section in Group (A) while in Group (B) 23 patients (35.4%) had cesarean section. Chorioamnionitis was seen in 14 patients (21.5%) in Group (A) while 3 patients (4.6%) had chorioamnionitis in Group (B). **Conclusion:** Our study concluded that induction of labour with twenty four hours of premature rupture of membranes does causes a reduction in occurrence of chorioamnionitis. By this approach patients are usually delivered within 24 hours and caesarean section rate is not increased. This approach also causes a reduction in augmentation of labour by oxytocin.

Key words: Induction of labour, maternal outcome, premature rupture of membranes,

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INTRODUCTION

Premature rupture of membranes (PROM) has been traditionally defined as the rupture of fetal membranes and leakage of amniotic fluid, the event occurring before the labour starts.¹⁻³ With the progression of pregnancy there is reduction in physical stress tolerated by fetal membranes. With advancing gestation collagen concentration falls. These factors contribute towards ensuring integrity of membranes throughout the course of pregnancy and facilitate their rupture at term.

Pre-labour rupture of membranes without spontaneous uterine contraction occurs in about 10% of all pregnancies among which almost 80%

cases are found to occur at term.⁴ Management of PROM at term is quite a controversial issue upto now. On one hand induction of labour causes reduction in fetal and maternal sepsis but on other hand it causes an increase in caesarean section rate because of uterine hyperstimulation and fetal distress. There is conflicting data regarding whether to wait for some time before induction or to induce labour immediately. Few studies have shown that upto 48-98 hours it is safe with expectant management and this approach does not increase rate of infection.⁵ Induction of labour has long been associated with increased risk of caesarean section but recent studies revealed that induction of labour causes less caesarean section

deliveries than without it.⁶

A study conducted by Shah K and his associates showed that in expectant group vaginal delivery occurred in 80% of patients while in induction group only 50% delivered vaginally. In expectant group 20% patients underwent cesarean section while in early induction group 50% of women with PROM had cesarean section.⁵

Another study by Maqbool S and her associates showed conflicting results. In this study in expectant group 39% patients delivered vaginally while 67% patients had vaginal delivery in early induction group. In expectant group 61% patients had cesarean section while cesarean section rate was 33% in early induction group 25% patients had chorioamnionitis in expectant group while it was seen in only 5% patients in early induction group with PROM.⁷

There is conflicting data in literature regarding maternal outcomes of early induction in women with PROM and expectant management. Due to these conflicting results we have planned to compare various maternal outcomes in case of induction of labour within 24 hours of premature rupture of membranes and with expectant management. In our study chorioamnionitis is also included in outcome variables because this outcome variable is not included in previous studies done in our local population. Our study will help to select appropriate method of management in women with PROM in our population.

MATERIAL & METHODS

This randomized controlled trial was conducted in Obstetrics & Gynaecology Department, Nishtar Hospital Multan from 15th March 2018 to 15th September 2018. A total of 130 women were included after taking required approval from hospital ethical board.

18-35 years old women, para 0-4, ≥ 37 weeks pregnant according to LMP, having singleton pregnancy on ultrasound and having premature rupture of membrane <4 hours were included in the study. Women with PROM before 37 completed weeks, having features of chorioamnionitis, fetal

distress, previous cesarean section and history of hypertension were excluded.

All patients were included in study after taking informed consent. Basic demographics (age, gestational age, BMI and parity) were recorded. Randomization was done by sequentially number opaque envelopes generate from a random numbers table. The sample was divided into two groups. Sample size taken for expectant management group or Group (A) was $n_1=65$ and $n_2=65$ was sample size for Group (B) or induction of labour group.

In Group (A) women were managed expectantly in which patients were observed for uterine contraction over a period of 24 hours. In Group (B) women were induced with tab. Dinoprostone 3 mg. 2 doses were given at an interval of 6 hours. Women in both groups were provided with antibiotic cover, sterile pad and fetal heart rate monitoring. Both groups were monitored for maternal outcomes i.e chorioamnionitis and mode of delivery. Monitoring was done throughout labour decision of cesarean section was taken by consultant due to various indications like failed induction, fetal distress. All procedures were supervised by a consultant gynaecologist having 3 years post fellowship experience. Data regarding caesarean section, vaginal delivery and chorioamnionitis was collected by researcher herself and recorded on a specially designed proforma. Data was analyzed by SPSS version 22. Percentages and frequency was calculated for qualitative variables like vaginal delivery, poor economic status, chorioamnionitis and cesarean section. Mean and standard deviation were calculated for quantitative variables like parity, age, BMI, gestational age and duration of PROM. For comparison of maternal outcomes in both groups Chi-square test was applied taking ≤ 0.05 as significant.

RESULTS

In this study age range was from 18-35 years. In Group (A) 29.553 ± 1.92 years was mean age while in Group (B) it was 30.200 ± 2.75 years. In Group (A) mean gestational age was 38.246 ± 0.84 weeks while in Group (B) it was $37.953 \pm$

0.95 weeks. In Group (A) mean parity was 1.076 ± 1.16 while in Group (B) it was 1.815 ± 1.66 . In Group (A) mean duration of PROM was 2.092 ± 0.67 hours and 2.092 ± 0.67 hours in Group (B). In Group (A) mean BMI was 26.088 ± 3.80 kg/m², in Group (B) mean BMI was 26.36 ± 4.33 kg/m².

In both groups majority of the patients were 28-35 years old as shown in (Table-I).

Age (Years)	n=65 (Group A)	n=65 (Group B)
18-27	6 (9.2%)	11 (16.9%)
28-35	59 (90.8%)	54 (83.1%)

Table-I. Frequency and %age of patients according to age in both groups.

Vaginal Delivery	n=65 Group A	n=65 Group B	P-Value
Yes	24 (36.9%)	42 (64.6%)	0.001
No	41 (63.1%)	23 (35.4%)	
Total	65 (100%)	65 (100%)	

Table-II. Comparison of Vaginal Delivery in Both Groups.

Cesarean Section	n=65 Group A	n=65 Group B	P-Value
Yes	41 (63.1%)	23 (35.4%)	0.001
No	24 (36.9%)	42 (64.6%)	
Total	65 (100%)	65 (100%)	

Table-III. Comparison of Cesarean Section in both groups.

Chorioamnionitis	n=65 Group A	n=65 Group B	P-Value
Yes	14 (21.1%)	3 (4.6%)	0.004
No	51 (78.5%)	62 (95.4%)	
Total	65 (100%)	65 (100%)	

Table-IV. Comparison of Chorioamnionitis in both groups. n=130

Stratification regarding vaginal delivery and cesarean section with respect to age and duration of PROM are shown in (Table-V,VIII).

For Age Group 18-27 years			
Vaginal Delivery			
Group	Yes	No	P-Value
A	3 (50%)	3 (50%)	0.857
B	5 (45.5 %)	6 (54.5%)	
For Age Group 28-35 years			
Group	Yes	No	0.000
A	21 (35.6%)	38 (64.5%)	
B	37 (68.5 %)	17 (31.5%)	

Table-V. Stratification of vaginal delivery with respect to age in Group A and Group B

For duration 1-2 hours			
Vaginal Delivery			
Group	Yes	No	P-Value
A	19 (40.4%)	28 (59.6%)	0.013
B	31 (66 %)	16 (34%)	
For duration > 2 hours			
Group	Yes	No	0.044
A	5 (27.8%)	13 (72.2%)	
B	11(61.1 %)	7 (38.9%)	

Table- VI. Stratification of vaginal delivery with respect to duration of PROM in Group A and Group B.

For Age Group 18-27 Years			
Cesarean Section			
Group	Yes	No	P-Value
A	3 (50%)	3 (50%)	0.857
B	6 (54.5 %)	5 (45.5%)	
For Age Group 28-35 Years			
Group	Yes	No	0.000
A	38 (64.4%)	21 (35.6%)	
B	17(31.5 %)	37 (68.5%)	

Table-VII. Stratification of Cesarean Section with respect to age in Group A and Group B.

For duration 1-2 hours			
Cesarean Section			
Group	Yes	No	P-Value
A	28 (59.6%)	19 (40.4%)	0.013
B	16 (34%)	31 (66%)	
For duration > 2 hours			
Group	Yes	No	0.044
A	13 (72.2%)	5 (27.8%)	
B	7 (38.9 %)	11 (61.1%)	

Table-VIII. Stratification of Cesarean Section -with respect to duration of PROM in Group A and Group B.

DISCUSSION

Pre-labour membrane rupture is an obstetrics phenomenon with unclear etiology, making management strategies controversial and diverse. Questions regarding management strategies arise because of concerns related to infection.

Following membrane rupture increased time period is a well known risk factor for infection. Previous research showed that if birth did not occur within twenty four hours of membrane rupture, perinatal mortality and morbidity are significantly increased.^{8,9} Research on factors predisposing to chorioamnionitis, postpartum endometritis, and neonatal infection show that infection risk keeps on increasing with increasing duration of membrane rupture.¹⁰⁻¹² As the pregnancy approaches term, women usually go into spontaneous labour. But in about 8.1% of women, although membrane rupture occurs labour does not initiate within the next few hours. Since fetomaternal infection increases with increasing time period, artificial labour induction may be considered between membrane rupture and delivery. However others believe that if there is no fetomaternal compromise, it is preferable to wait for spontaneous onset of labour, because it may reduce cesarean section rate.¹³

In our study mostly patients were 27-35 years old and ≥ 37 weeks pregnant in both groups. In Group (A) mean and standard duration for gestational age was 38.246 ± 0.84 weeks while in Group (B) it was 37.95 ± 0.95 weeks, not significant statistically. These findings are comparable to the study conducted by Fabiana¹⁴ in which 25 (33%) patient were 37-38 weeks pregnant in Group (A) and in Group (B) 23 (33%) were 37-38 weeks pregnant, again not significant statistically.

In our study induction with dinoprostone resulted in spontaneous vaginal delivery in 64.6% of patient in comparison with 36.9% of patient in expectant management group. Study conducted by Shetty et al¹⁵ show similar results. These results are also comparable to the results of study conducted by Ara¹⁶ at DOW University of Health Services and Civil Hospital, Karachi.

In our study, in induced group 35.4% patients had cesarean section in comparison with 63.1% in expectant management group. These results are statistically significant and similar to results of other studies.^{16,17}

Chorioamnionitis was seen in 4.6% of patients in induced Group and in 21.5% of patients in expectant management group. These findings of our study are statistically significant and comparable with the findings of study conducted by Javed,¹⁸ in which induced group had a relatively lower rate of chorioamnionitis 3% as compared to 7.8% in expectant management group.

CONCLUSION

Our study concluded that with induction of labour within twenty four hours of premature rupture of membranes patients are usually delivered within 24 hours as compared to expectant management.

Active management with induction reduces oxytocin augmentation need and risk of chorioamnionitis. At the same time cesarean section rate is not increased by this approach.




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AUTHORSHIP AND CONTRIBUTION DECLARATION

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2	Hajira Sultana	Data collection, Proof reading.	
3	Saima Yasmin Qadir	Data analysis & manuscript writing.	
4	Muhammad Khalid	Co-ordination among authors & Data collection.	